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ABSTRACT

        Today, many educational institutions have been challenged to
integrate technology. Researchers have argued that implementing innovation
without considering clients' needs or concerns usually results in resistance
to change. The reason for this problem is a lack of attention to the clients'
attitudes, perceptions, and concerns. This paper introduces a framework for
analyzing clients' concerns and perceptions based on an information
technology project that has been implemented in a seminary setting during the
last five years. While conducting interviews with the teaching faculty
members who participated in the information technology project at a seminary,
the researcher identified four categories of concerns: concerns of individual
incompatibility; concerns of the unknown; concerns of organizational support;
and concerns of organizational incompatibility. The characteristics of and
interventions in each category of concern are explained in this paper.
(Contains 16 references.) (AEF)

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Introduction

Today, many educational institutions have been challenged to integrate technology into their work settings. Technology is a mean of supporting goals related to increased student involvement with complex, authentic tasks within classrooms and schools (Scheingold, 1991). However, successful technology integrations are sometimes confronted with several difficulties, which include clients' resistance to change (Conner, 1992; Collins, 1991) or the lack of cooperation of the part of the people involved in that change (Kemp, 1996).

Recently, researchers argue that an innovation without considering clients' needs or concerns usually resulted in resistance to change (Ertmer, 1996; Hall & Hord, 1978; Dormant, 1986). The reason for this problem is a lack of attention to the clients' attitude, perceptions, and concerns that people form toward innovation. These concerns play an important role in the innovation process as well as in the inherent quality of the proposed change (Pershing, An, & Lee, 2000). Hence, identifying and addressing concerns and perceptions are an essential task of change agents during the whole innovation process. In this article, I will introduce a framework for analyzing clients' concerns and perceptions based on an information technology project that has been implemented in a seminary setting during the last five years. While conducting interviews with the teaching faculty members who participated in the information technology project at a seminary, I identified four categories of concerns. In this article, I will explain the characteristics of and interventions in each category of concern.

Context of the Case

In the mid 1990s a seminary in the Midwestern United States was awarded an externally funded grant for a technology initiative, which included developing instructional computing capabilities throughout the school (Saint Meinrad, 1995). The seminary hired two instructional interns to provide computer training to the seminary faculty and staff. At the beginning phase of the initiative, the interns conducted a training needs analysis. The main focus of the analysis was to gather information about the kinds of training programs faculty and staff members would need. Through the analysis, however, several concerns surfaced (Saint Meinrad, 1998). For example, the faculty members did not seem to think that computer technology was a tool useful for theology education, which emphasizes personal interactions within small groups. Administrators of the initiative, however, did not pay much attention to this perceived concern. They proceeded on the assumption that faculty members always complain about new initiatives, and they viewed such concerns as natural. They assumed that faculty members would eventually accept and use computers provided the faculty members received the proper training. With these assumptions in place, the administrators put effort into collecting and addressing training needs information while ignoring their concerns.

After the interns had provided in-service training for one year, they began to make informal visits to the classrooms, computer labs, library, and the faculty resource center. They found that many faculty members were not integrating computers into their teaching. According to the project implementation plan, almost all faculty members should have been using computers in their instruction after one year, since all the necessary facilities and training had been provided.

Faced with such resistance, the administration began to take the idea of concerns seriously. The administrators of the seminary learned it was not the lack of facilities or training, but concerns of the faculty that affected the success of the initiative. With this realization, they asked the interns to conduct a concerns analysis. One-on-one interviews and document analyses were used as data collection methods. All twenty-six teaching faculty and several administrators and staff of the seminary were interviewed (Lee, 2001). After conducting many rounds of card sorting, the interns identified four categories of concerns as below.

Category I: Concerns of Individual Incompatibility

Faculty perceived that the project was not compatible with their theological values or past personal experiences. These concerns had a critical influence in the earlier stages. Some faculty who understood and were well informed about the project, however, had not embrace it because of their perception of technology as opposing theological pedagogy. If they were not persuaded during the earlier stages, then it was hard to accept the project. Hence, this area of concern was critically important in the earlier stages of an innovation project, but its importance declined in the following stages. The following are several representatives of this area of concerns.

Conflicts of Needs between Institution and Faculty Regarding Technology A definite incongruence existed in needs between individual faculty and the seminary as a whole. The institution had emphasized that technology was the only tool to increase learning effectiveness in the information age. However, to the individual faculty, using technology was just one of many ways to improve learning methodologies. As one faculty pointed out, to accomplish the goal, it was not necessary to incorporate

technology, because technology was not the only way to accomplish the goals. Furthermore, overemphasis on technology at the beginning stage of the project negatively influenced all faculty members.

Skepticism about Technology Ten faculty members among the 26 were very skeptical about technology. This resulted from their not being aware of the worth, potential benefits, or value of technology. Also, they were not convinced that technology was indispensable for their academic setting or their personal lives.

Paradigm Paralysis Fourteen faculty members out of 26 expressed this category of concern, which was the largest barrier to adopting technology among the faculty members of the seminary. This concern can be broken down into two sub-categories: the faculty's perception of technology as opposing theological pedagogy, and the faculty's comfort with current teaching styles. Faculty members thought that technology (or the information technology project) was basically incompatible with their theological context.

Theology, they argued, should focus on nurturing human nature, which is only possible with human interactions between instructors and students. In this point, they felt that their particular theological discipline could not adapt itself to technology because theological educators are suspect of the value of technology beyond the basics of classroom pedagogy. The other reason is that they believed their current teaching style had worked well for several decades, so there was little desire to take the time to change it.

Fear of Technology Nine faculty members expressed fear of technology in two forms: fear of the unknown and fear of the new. Some faculty were afraid something would go wrong with the computers. Most faculty said that they had not grown up in the technology culture. To them, technology was a foreign area. Even adopters of the innovation expressed concerns that technology had advanced so drastically that keeping pace with the advancement of technology seemed impossible.

Laggard Syndrome Nine faculty members perceived themselves as being far behind in using technology. One faculty who used technology in his classroom setting even expressed that he was at the knowledge stage, still trying to find out the benefits of technology.

False Information/ Irrational Belief Seven faculty members sympathized strongly with the criticism that technology is not a learning tool proper for the seminary. Some faculty mentioned that technology is a deterrent to human learning and communication. Those arguments were not based on scientifically proven facts but were based on personal feelings or subjective reflections. However, these feelings have not allowed them to see the potential benefits of the technology.

What are the effective interventions should be needed to address this category of concerns? Rogers (1995) indicated that person-to-person communication is important to address this area of concerns. Dormant (1986) also suggested that change agents should be counselors who draw out concerns, and listen to and clarify the adoption units' needs and interests. Hence, individual persuasion is a useful strategy to address this area of concerns by providing counseling and consultation sessions. The seminary realized that persuasion on an individual basis was the best strategy after noticing faculty's resistance to the innovation.

The seminary recognized that a core group was very skeptical about technology even after several years had passed since the innovation started. To identify their concerns, the seminary conducted one-on-one interviews with faculty members to become aware of the many issues that related to this area. The seminary stressed that Instructional Service staff were not attempting to change faculty's teaching styles, but to enhance their teaching styles with the use of technology. Also, the seminary published a monthly technology newsletter, both in print and on the intranet, featuring articles on the individual-incompatible area of concerns. Several faculty members wrote articles mentioning their successful experiences with technology in their teaching settings. The seminary provided opportunities for faculty members to visit other advanced technology-driven education institutes or learning opportunities to familiarize them with the practical applicability of technology in the seminary context. Also, more than ten faculty members attended technology-related seminars, conferences, and workshops.

Category II: Concerns of Unknown

Even when the value of an innovation is compatible with the target audience's values, the individuals of the adoption units may not accept the proposed innovation as planned for several reasons, including fear of the unknown and lack of information or knowledge required to implement the innovation. In the earlier stages, the individual faculty usually felt fear of the unknown or fear of lacking required knowledge or skills. The following are the typical examples of this category of concern.

More Work To eight faculty members, technology was one more burden that they had to learn. Technology adds or creates another task. Even faculty who used technology in the classroom expressed this concern most often. To learn technology was becoming increasingly stressful and time consuming for the faculty members.

Lack of Detailed Information about the Project The vision of the project was not address well to all faculty members. The lack of vision also made it difficult to set up the details for diffusing the innovation. Five faculty confessed that they were not aware of the detailed tasks in relation to the innovation. They expressed concerns about how technological innovations were to apply to the particular learning environment.

<u>Teaching/Mentoring Concerns</u> Providing individual teaching or mentoring was an effective means of adopting the technology by faculty members. Individual training was preferred over group sessions by the school faculty. Several reasons were expressed. The difficulty of finding a common time among faculty members and consideration of individual pacing were major reasons.

<u>Time Conflict</u> Eight faculty mentioned that time was one of the most important concerns in their not adopting technology. They said that technology was not a priority to them, for their primary responsibility was to prepare a class or preach. Some faculty had not even tried to learn technology because they worried about how much time would be spent.

<u>Students' Unfavorable Attitudes toward Technology</u> Students' unfavorable attitudes toward technology were also mentioned by two faculty members. Ironically, faculty members who had unfavorable attitudes toward technology mentioned that students showed the same phenomena. Two faculty expressed that students did not say that the technology helped them. That made some faculty not use much technology in classrooms.

<u>Lack of Information about Good Applications</u> Four faculty members said that it was hard to find someone who had applied technology very well. There was no easy way to identify other faculty members on campus who had already begun to use technology effectively in their teaching. And for most theological disciplines in particular, there was no comprehensive, easy-to-find source of information about relevant instructional applications of technology. While the number of locally successful models of educational uses of technology continued to increase, access to good descriptions of those models, training for them, and reports of their strengths and weaknesses were not easy to find.

The major strategy for addressing this category of concerns is learning, because usually these concerns can be overcome by providing well-organized training programs, job aids, and consultation programs. Also, providing correct information in a timely manner is another useful strategy to address this area of concern. However, the faculty's learning focus changed from general and basic issues of technology to more elaborate and complicated issues, such as transferring or applying the technology in more specific contexts in this case. This is why the learning format changed over time from the general group-based to the individual customized format.

To identify issues in this area and set up learning interventions, the seminary conducted a needs analysis project by conducting interviews with each faculty member as well as mailed surveys (Saint Meinrad, 1998). Based on these phenomena, several learning interventions were arranged in the seminary. First of all, an individual learning road map for each faculty member was developed. According to the road map, the well-organized technology training programs were provided for the following year. The interns had been working on-site on a weekly basis. After taking these programs for one year, the faculty improved their computer competencies from 2.5 out of 5 on the Likert scale to 3.1 in the same survey (Saint Meinrad, 1998). As the faculty moved deeper into the innovation, the focus of learning shifted to more individualized consulting and one-to-one training sessions. Also, remote consulting was offered by using electronic communication channels between the faculty and the outside interns.

To address time concerns, the seminary formed a committee to reorganize teaching loads. The recommendation of the committee was that the eclectic courses could be cancelled if few students enrolled, so the faculty could be learning at that time instead of teaching the course. Also, lack of time to learn was the most crucial factor in this category of concerns in this seminary. To address this concern, the seminary developed a training schedule that was flexible, meeting at different hours of the day, even evenings, so that the faculty could best take advantage of the offerings.

Category III: Concerns of Organizational Support

The organizational-compatible concerns were salient factors to be considered at the middle stage of the project at the seminary. Faculty who understood the benefits of the innovation did not adopt it because there were no organizational encouragements to do so. Many faculty members expressed concerns about the lack of organizational supporting systems and motivational systems. The following remarks are the typical expressions of this category of concern. The following are several representative examples of this category of concern.

<u>Equipment and Maintenance Problems</u> Several concerns were expressed in this category by seven faculty members. First, the faculty experienced difficulties when servers went down, especially after hours or on weekends. Some buildings were not equipped with technology. Not much software was installed in the Faculty Resource Center (FRC) or the Educational Technology Center (ETC), which made programs hard to access when needed. Services from maintenance persons were hard to find or untimely when computing problems occurred. Students may not have had support from the seminary to fix their computers if the computers had problems.

<u>Students' Limited Access to Equipment and Support Services</u> Three faculty members of the 26 mentioned that students' opportunities to access technology were limited. Not all the students' rooms and classrooms were wired. Some students could not access the technology, so electronic communication was sometimes impossible. Also, the computers in the student production center were so old that students could not use advanced software.

<u>Students not Involved</u> Three faculty members mentioned that students were not involved in the innovation from the start. It was directed to the faculty group only and it began without asking how students would learn or use the technology.

<u>Lack of Organizational Benefits</u> Lack of organizational benefits and motivational factors were mentioned by seven faculty members out of 26. The institution did not recognize the adopters of the innovation. Two faculty mentioned they might have adopted it if the institution had offered some motivation or incentives, such as monetary benefits. Suggestions of non-monetary benefits were also mentioned, such as vacations and training opportunities, and to lessen the teaching burden.

<u>Distrust and Poor Communication Among Stakeholders</u> There was little communication and coordination among stakeholders during the innovation diffusion process. The innovation initiators did not even try to gather ideas from the three constituent groups, faculty members, staff, and students, in order to make the most effective uses of technology, new approaches to teaching and learning, and other available resources in the seminary setting. Six faculty of the 26 expressed problems with innovation in this category.

This area of concerns is relatively easy to measure and to eliminate if addressed carefully and in a timely fashion during the innovation diffusion process (Fisher, Wilmore, & Howell, 1994). Traditionally, most change scholars have overlooked these concerns at the beginning. However, in order to lead a successful innovation project, the plan has to be reviewed regularly during the innovation process. Raising money, allocating resources, and providing technical and administrative support, including incentives or motivational systems, are essential elements.

These concerns can be eliminated by acquiring resources and equipment, providing timely technical and administrative support, providing incentives or benefit systems, and maintaining equipment. Foa (1993) pointed out that incentives, support, and reward structures are needed in order to make the efforts of the individuals more widespread and their results used more comprehensively. Major problems for the seminary lay in the institution's failure to provide motivation or incentives to encourage faculty members' active usage of the innovation. Many faculty suggested both monetary and non-monetary benefits and motivators, such as vacations, training opportunities, and a lessened teaching burden. While not providing any monetary benefits, the seminary provided many forms of non-monetary benefits, such as providing training programs and visiting other technologically advanced schools. The director of the Academic Computing Department became a member of the president's cabinet, a group of advisors to the president, and thus was directly involved in developing a new master plan, which included major renovations of several buildings over the next five years.

Category IV: Concerns of Organizational Incompatibility
Last category of concerns is related to the organizational incompatibility. Faculty expressed that the innovation was not compatible with the seminary culture. The seminary culture was oriented toward more human interaction, and focused on formation-building. Furthermore, the seminary was isolated geographically, as well as divided by disciplines. They also expressed their isolation regarding the innovation. The innovation was initiated in a top-down manner. They did not receive information in a timely fashion. Clear goals and directions for the innovation were not given to the faculty. Furthermore, faculty tended to work individually rather than in teams. Every faculty member understood the innovation differently. Hence, they perceived that two incongruent innovation diffusion tracks existed in the seminary: the individual faculty track and that of the institution. This concern began to increase in importance after addressing the individual-incompatible concerns, but increased strongly in importance at the implementation stage during the diffusion process. The following are several examples of this category of concerns.

<u>Isolated Culture</u> The cultural characteristics of the seminary, 4 faculty argued, were not compatible with technology. First, in preparing people for the ministry, the top priority of the seminary is fundamentally different than preparing people to teach in other higher educational institutions. The use of technology can be maximized mainly in the latter setting. Religious organizations such as the seminary must emphasize the value of forming and building relationships, which does not embrace technology. Hence, some faculty mentioned that technology was not a driving force at the seminary. Second, faculty had not grown up in a technology culture. Some faculty mentioned that the European learning model, which mainly uses lecture format in classrooms, had influenced the faculty members who had studied in Europe, who were the majority in the seminary. Third, the individuality of faculty members was another cultural characteristic. Most of the faculty pursued different disciplines and different areas of interest. That was the major reason why faculty were accustomed to working individually rather than in teams, which the innovation sometimes required them to do.

<u>Class Characteristics</u> Another reason for incompatibility originated from the class contexts that were small-group class setting and technology was not related the course content. Five faculty members argued that technology could not make an impact in a small class. Most of classes were populated by fewer than 10 students. In this situation, technology was ineffective for increasing learning. The other reason why the faculty did not utilize technology during class was their perception of the inability of the course to embrace technology.

<u>Sharing and Showing</u> Learning technology was one of the biggest concerns of the faculty members. Nine faculty members of the 26 expressed this type of concern. Sharing information about, or experiences with, technology among faculty was vital, and it could have been a strong influence on the faculty as a whole. Partly owing to a lack of vision for the innovation and to a lack of concrete examples of how to apply technology in a seminary setting, the faculty wanted to see other people's experiences and or knowledge.

<u>Not Having a Clear Image of the Project</u> Eleven faculty out of 26 expressed a lack of vision for the project from the beginning. This area of concern was the second largest barrier for the faculty. They argued that the innovation project was started by grant money rather than a vision. Without serious questions about why this innovation was needed in the seminary, the institution started the innovation, and this made it difficult for the faculty members to grasp the vision or purpose of the innovation.

<u>Fragmented Technology Planning</u> Five faculty members argued that the innovation was started without considering the necessity of information technology carefully in the context of Catholic pedagogy. They expressed that the innovation was focused on teaching rather than learning, and focused on media rather than methods. Two faculty criticized the innovation for starting in reverse order, selecting media (buying computers) without considering methods. One faculty mentioned that this project had missed one critical stage in the beginning: needs assessment or values clarification.

Collaboration was the most useful strategy to address this area of concern in the seminary. To address issues of this area, the seminary's geographical isolation, diverse faculty disciplines, and a top-down diffusion strategy, collaborative work among the faculty was essential. For example, creating a vision statement and sharing the innovation-related experiences with other individuals in the adoption units were helpful tasks in the seminary.

The seminary formed an ad hoc committee to set up a clear vision for technology and teaching at the seminary. The committee developed a vision with consensus from all faculty members and reported their findings to the faculty. Another intervention was to arrange several learning events in order to facilitate collaborative work among faculty members in the seminary. Through these events, faculty members shared their ideas with other faculty members. Sharing among faculty was the key activity for changing the seminary culture. These events included faculty presentation day, faculty learning day, small group interests, brownbag lunches and learning sessions. Also, through the funds from the grant, many faculty took advantage of conference opportunities to gain more knowledge about the appropriate use of technology. Furthermore, the seminary developed contacts with other schools facing the same issues and was able to find and demonstrate good practices in technology for theological instruction.

Concluding Remarks

Information technology is an effective means of increasing teaching and learning effectiveness in higher educational settings including seminaries. However, it must be well planned and organized before the project begins. Identifying clients' concerns and taking care of them are an important task of change agents during an innovation process. Setting up a vision statement, conducting perception analysis, and preparing detailed plans for the project would guarantee a successful implementation of an information technology project in a higher education setting.

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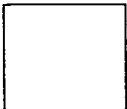
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